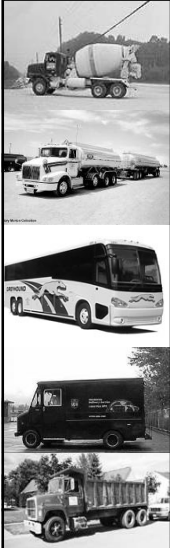


Statewide Truck/Bus Proposed Regulation



Proposed Statewide Diesel Truck and Bus Regulation


Workshop Series

San Diego	– July 22 (day)
El Centro	– July 22 (evening)
El Monte	– July 24 (day)
Redding	– July 28 (day and evening)
San Jose	– July 30 (day and evening)
Sacramento	– July 31 (day)
Riverside	– August 4 (evening)
Fresno	– August 5 (day)
Arvin	– August 5 (evening)

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Overview

- ◆ Need for emissions reductions
- ◆ Proposed regulation
- ◆ Emissions inventory, benefits, and costs
- ◆ Next steps



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Need for Emissions Reductions

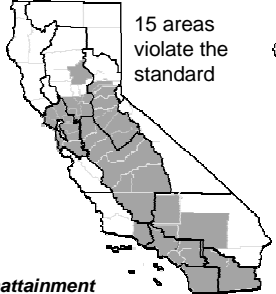
- ◆ Trucks are the largest source of diesel particulate matter (PM) in California
 - ◆ Diesel particulate matter contributes to premature death, cancer and other adverse respiratory health impacts
 - ◆ Diesel Risk Reduction Plan designed to reduce health risk caused by diesel particulate
- ◆ Trucks are the largest source of oxides of nitrogen (NOx) in California
 - ◆ NOx emissions cause ozone and PM2.5 formation
- ◆ Many areas of the state don't meet clean air standards

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Area Designations for National Ambient Air Quality Standards for Ozone and PM2.5

8-Hour Ozone



15 areas violate the standard

PM2.5 Annual



2 areas violate the standard

■ Nonattainment
□ Unclassified/Attainment

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Statewide Truck/Bus Proposed Regulation

In-Use Diesel Regulatory Activity

- | | |
|---------------------------------|---|
| ◆ Urban Buses (2000) | ◆ Public Fleets & Utilities (2005) |
| ◆ Garbage Trucks (2003) | ◆ Cargo Handling Equipment at Ports and Rail Yards (2005) |
| ◆ School Bus Idling (2003) | ◆ Off-Road Vehicles (2007) |
| ◆ Stationary Engines (2004) | ◆ Port Trucks (2007) |
| ◆ TRUs (2004) | ◆ <u>Statewide Truck and Bus</u> |
| ◆ Truck and Bus Idling (2004) | ◆ Off-Road Agricultural Vehicles (scheduled for 2009) |
| ◆ Portable Engines (2004) | |
| ◆ Transit Fleet Vehicles (2005) | |



5

Health Benefits from the Proposed Truck and Bus Regulation are Significant

- ◆ Health impacts from trucks and buses are significant
- ◆ Proposed regulation would reduce health risks from 2010 to 2023
 - ◆ Preliminary estimates of up to 5,000 premature deaths avoided
- ◆ Higher risk along freeways and areas where trucks operate

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Compliance with the State Implementation Plan (SIP)

- ◆ Proposed regulation is most important SIP commitment in South Coast and San Joaquin Valley
 - ◆ Early PM and NO_x reductions for PM_{2.5} attainment in 2014
 - ◆ NO_x reductions for ozone in 2017, 2020, and 2023
- ◆ Benefits of regulation assessed relative to inventory used at the time SIP was developed
 - ◆ San Joaquin Valley
 - ◆ Meets PM and NO_x targets
 - ◆ South Coast
 - ◆ Meets combined PM and NO_x targets

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Proposed Statewide Truck and Bus Regulation

Proposed Statewide Truck and Bus Regulation Scope

- ◆ Diesel vehicles operating in California
 - ◆ Trucks, buses, yard trucks and other
 - ◆ Interstate, intrastate, international, and other
- ◆ Vehicles greater than 14,000 GVWR and shuttle buses
- ◆ Any person, business, or government agency who owns, leases, rents, or sells a vehicle in California
- ◆ Excludes emergency vehicles, military tactical vehicles, and personal use motorhomes
- ◆ Schoolbuses subject only to PM requirements

Overview of Proposed Regulation

- ◆ Install PM controls in 2010 & 2011
 - ◆ Almost all vehicles equipped by 2014
- ◆ Phase-in 2010 model year engine equivalent
 - ◆ One turnover between 2012 and 2022
 - ◆ Exhaust retrofits if equivalent emissions
- ◆ Certain special provisions
- ◆ Any of 3 compliance options for PM or NOx
 - ◆ Best available control technology (BACT), or
 - ◆ Fleet average, or
 - ◆ Limits on turnover and retrofits

Compliance Option 1: Best Available Control Technology Schedule

- ◆ PM BACT
 - ◆ Highest level PM control technology
- ◆ NOx BACT
 - ◆ 2010 model year emissions or cleaner
 - ◆ 2004-2006 model year emissions with ≥ 85% NOx reduction
 - ◆ 2007 model year emissions with ≥ 70% NOx reduction
- ◆ No reporting required

Compliance by December 31:	Existing Engine Model Year	Requirements
2010	Pre-1994	PM BACT
2011	2003-2004	PM BACT
2012	2005-2006 1994-1999	PM BACT NOx and PM BACT
2013	2000-2002	NOx and PM BACT
2014	Pre-1994	NOx and PM BACT
2015	2003-2004	NOx and PM BACT
2016	2005-2006	NOx and PM BACT
2017	NA	NA
2018	NA	NA
2019	NA	NA
2020	2007	NOx and PM BACT
2021	2008	NOx and PM BACT
2022	2009	NOx and PM BACT

Compliance Option 2: Turnover and PM Retrofit Limits

- ◆ PM BACT
 - ◆ Highest level PM control technology
- ◆ NOx BACT
 - ◆ 2010 model year emissions or cleaner
 - ◆ 2004-2006 model year emissions with ≥ 85% NOx reduction
 - ◆ 2007 model year emissions with ≥ 70% NOx reduction
- ◆ Requires reporting

Compliance by December 31:	PM BACT	NOx BACT
2010	25%	NA
2011	50%	NA
2012	75%	25%
2013	100%	50%
2014	"	60%
2015	"	70%
2016	"	80%
2017	"	80%
2018	"	80%
2019	"	90%
2020	"	90%
2021	"	90%
2022	"	100%

Compliance Option 3: Fleet Average

- ◆ Can be met by any method
- ◆ Provides opportunities for NOx controls
- ◆ Provides flexibility
 - ◆ Allows mix of cleaner and dirtier engines
- ◆ Staggered start dates
 - ◆ PM begins in 2010
 - ◆ NOx begins in 2012
- ◆ Reporting required

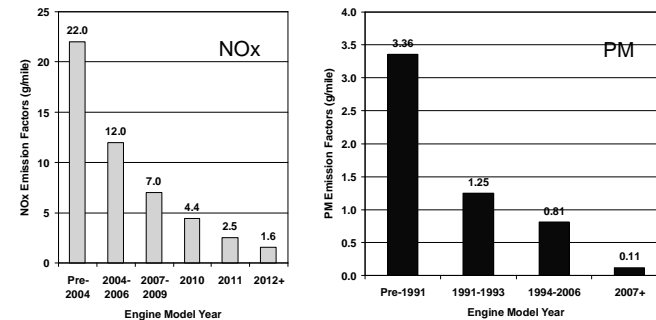


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Emission Factors in Fleet Average

Class 8 Vehicles (>33,000 lbs)

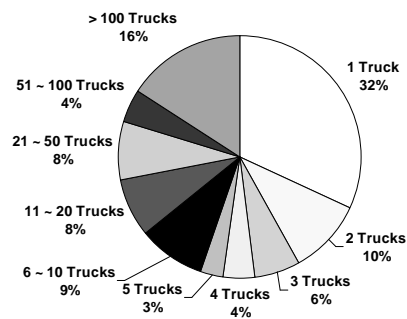


Note: Most 2003 model year engines met 2004 emissions standard
Separate emission factors for smaller vehicles not shown

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Number of Trucks by Fleet Size



2006 DMV DATA: HHD & MHD Truck Population

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Special Provisions Small Fleets

- ◆ Applies to fleets of up to 3 vehicles
- ◆ Exempt from performance requirements in 2010 and 2011
- ◆ First vehicle upgraded in 2012
 - ◆ 2004 emission engine with PM control exempt until 2017
- ◆ Remaining trucks upgraded 2013-2022
- ◆ Provide additional time for 3 vehicle fleets
- ◆ Subject to reporting requirements

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Statewide Truck/Bus Proposed Regulation

Special Provisions Exemption from Replacement Requirements

Exempt Vehicle	Expires Dec. 31
Vehicle with highest level PM control by Dec. 31, 2009	2013
Class 8 vehicle operated less than 7,500 miles Certain vehicles must also operate less than 250 hrs per year	2020
Smaller vehicle operated less than 5,000 miles Certain vehicles must also operate less than 175 hrs per year	2020
Cab-over-engine tractors exclusively pulling 57-foot trailers (must be 2004 or newer)	2017
Schoolbuses	Does not expire

- ◆ Remain subject to PM requirements
- ◆ Subject to reporting requirements

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Special Provisions

Exemption from Replacement Requirements (continued)

- ◆ Vehicles operated exclusively outside non-attainment areas regardless of miles travelled
 - ◆ Exempt until 2020
- ◆ New exception for repairs
- ◆ Remain subject to PM retrofit requirements
- ◆ Subject to reporting requirements



Attainment Area Counties - Alpine, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Monterey, Plumas, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz, Shasta, Sierra, Siskiyou, Trinity, Tehama, and Yuba

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Other Special Provisions

- ◆ Certain specialty farm vehicles exempt from PM requirements until 2017
 - ◆ Cotton module, spreader, silage, and other
 - ◆ Remain subject to NOx requirements
- ◆ Vehicles used fewer than 1,000 miles and less than 100 hours per year exempt from all clean up requirements
- ◆ Credits for hybrid vehicles expires in 2017
- ◆ Subject to reporting requirements

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Summary of Other Changes

- ◆ Equal treatment in BACT for engines with equivalent emissions to 2004 and 2007 engines
- ◆ No replacement to meet PM BACT until 2017
- ◆ BACT required for 2004 to 2006 MY drayage trucks starting in 2010
- ◆ Replacement delay for unique vehicles until 2017
- ◆ Exemption process if unsafe to add PM controls
- ◆ Online notice of reported compliance
- ◆ May exclude cleanest trucks for compliance
- ◆ Exemption from idling shut-off for workover rigs and armored cars

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Additional Proposed Changes Off-Road Diesel Vehicle Regulation

- ◆ Make two engine cranes subject to regulation for in-use off-road diesel fueled vehicles
 - ◆ Both upper and lower engine
- ◆ Exempt from portable engine and equipment registration requirements
 - ◆ Except for the opacity limits
- ◆ Would no longer be subject to the portable engine air toxic control measure
- ◆ Workover rigs must install on-road certified engines to operate on-road

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Additional Proposed Changes Public Agency and Utilities (PAU)

- ◆ Addition of Light Heavy-Duty Engines
- ◆ Include all heavy-duty engines in vehicles >14,000 lbs gvwr in record keeping, labeling and total fleet size calculation starting 1/1/2009
- ◆ Meet 2009 and future BACT compliance deadlines
- ◆ 2009 compliance extension application
 - ◆ Light heavy-duty engines only
 - ◆ August 1, 2009 application deadline

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Additional Proposed Changes Public Agency and Utilities (PAU)

- ◆ Addition of all 2007+ model year engines certified above 0.01g PM standard
- ◆ Add Group 4 Implementation Schedule
 - ◆ Apply BACT by 2012
 - ◆ Low Population follow Group 3 plus 1 year
- ◆ Meet all labeling and record keeping requirements as of 1/1/2009

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Additional Proposed Changes Public Agency and Utilities (PAU)

- ◆ Retirement: Out-of-State Sales
- ◆ To qualify as a retired vehicle:
 - ◆ Submit VIN stop request to ARB prior to sale of vehicle
 - ◆ Registration Hold (VIN Stop) in place prior to sale
 - ◆ Third Party Vehicle Seller Contract

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Proposed School Bus Requirements

- ◆ Requirements begin in 2010
- ◆ Must meet PM only
- ◆ Same 3 compliance options
- ◆ Exemptions
 - ◆ Historic school buses
 - ◆ Low-use operation
- ◆ Reporting requirements

Revised BACT Compliance Schedule for School Buses

Compliance Deadline As of December 31	Engine Model Year
2010	2000 and newer
2011	1994 - 1999
2012	1987 - 1993
2013	Pre-1987

Note: Exemption delay until 2017, if engine cannot be retrofit, reporting requirement only.

Reporting Requirements

- ◆ Annual demonstration of compliance for all options except BACT schedule
- ◆ Owner contact information including motor carrier number
- ◆ Vehicle and engine information
 - ◆ Make, model, model year, VIN, License plate, engine family, engine serial number, etc.
 - ◆ Emission control system information
- ◆ Mileage exemptions or NOx Exempt Area
 - ◆ Records from a tracking system, Highway Vehicle Use Tax Return, other documentation

Enforcement

- ◆ Web based database for tracking vehicle records
- ◆ Provisions built into regulation to crosscheck other programs
 - ◆ DMV (registration/MCP), U.S. DOT, IRS
- ◆ Expand existing inspection efforts
 - ◆ Weigh stations, random roadside and fleet
- ◆ Audits of records
- ◆ Additional resources needed

Emissions Inventory and Benefits

Inventory Updates for Regulation

- ◆ Discussed at cost/inventory workshops
 - ◆ More statewide vehicle miles traveled
 - ◆ Younger interstate truck age
 - ◆ Updated medium duty emission rates
 - ◆ Phase-in of new engine standards
 - ◆ Updated mileage accrual by truck type
- ◆ Growth
 - ◆ Consistent with transportation planning agencies
- ◆ Spatial allocation
 - ◆ More in-state truck activity occurs in air basin of registration
 - ◆ South Coast: single-unit, drayage trucks
 - ◆ San Joaquin Valley: agricultural trucks
 - ◆ Interstate trucks and in-state tractors travel throughout the state
- ◆ Results presented today incorporate the best available data for use in the rulemaking

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Statewide Emissions Benefits

Cal Yr	NOx Tons per Day		
	Baseline*	With Rule	Tons Reduction
2008	843		
2014	506	376	130
2023	324	220	104

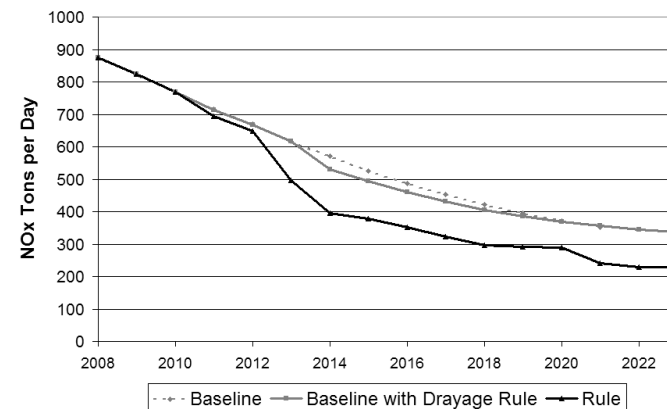
Cal Yr	PM _{2.5} Tons per Day		
	Baseline*	With Rule	Tons Reduction
2008	32		
2014	18	6	12
2023	10	7	3

* Baseline includes Drayage Truck Rule

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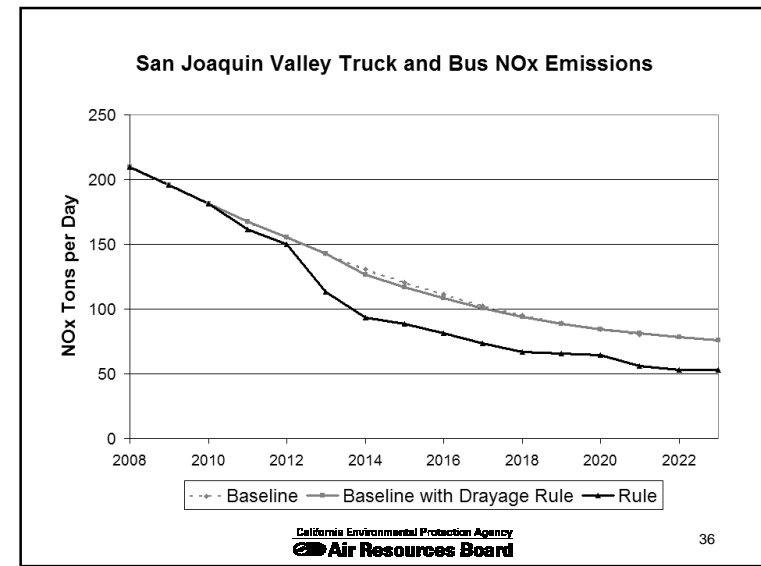
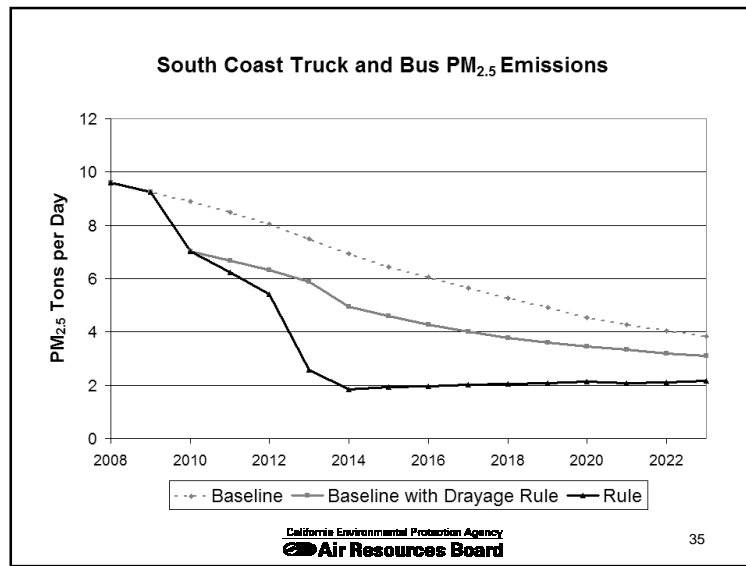
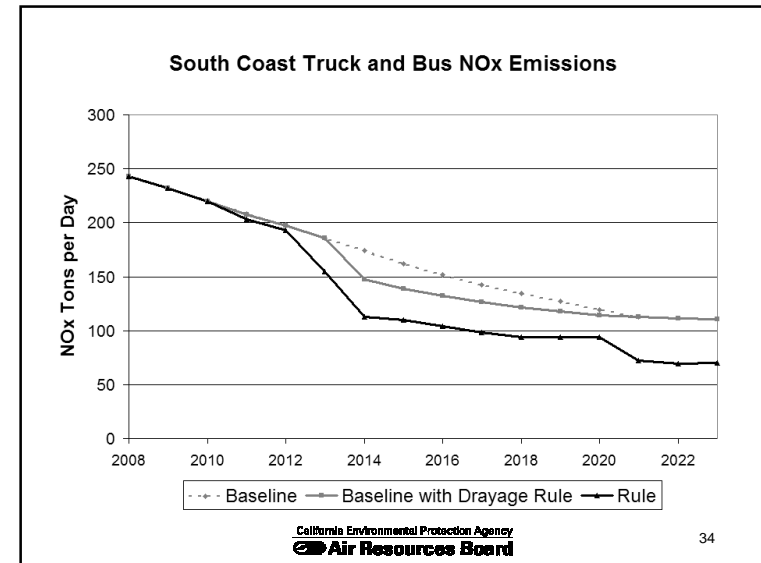
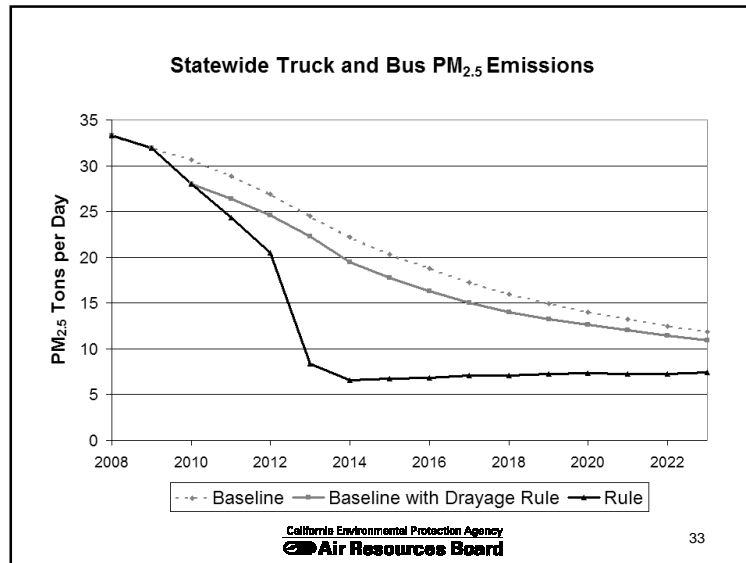
Statewide Truck and Bus NOx Emissions



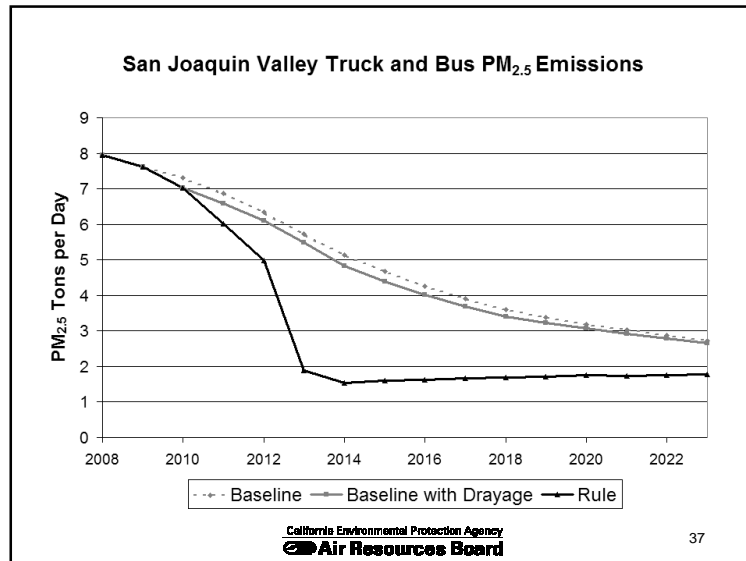
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Statewide Truck/Bus Proposed Regulation



Statewide Truck/Bus Proposed Regulation



Estimate of Statewide Costs

- ◆ Preliminary cost estimate ranges from \$4.4 to \$5.4 billion (\$2008)
- ◆ Cost effectiveness
 - ◆ NOx: \$6,100 to \$7,600 per ton (\$3 to \$4 per lb)
 - ◆ PM: \$90,000 to \$110,000 per ton (\$45 to \$55 per lb)
- ◆ Recently completed cost methodology workshops

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Company Specific Impacts

- ◆ Evaluating costs of proposed regulation on 12 individual businesses
 - ◆ Truckload, less than truckload, bus, construction, refrigerated transport, building supplies, farming
- ◆ Financial analysis includes impacts on cash flow, income, debt
- ◆ Evaluating costs from other regulations
- ◆ Still need follow-up

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AB32 Truck Green House Gas Regulation

Proposed Heavy-Duty Vehicle Green House Gas (GHG) Regulation Scope

- ◆ Long haul heavy-duty tractors
- ◆ Box-type trailers - 53' or longer:
 - ◆ Dry van
 - ◆ Refrigerated van, and
 - ◆ Curtain-side van
- ◆ California and out-of-state registered
- ◆ Drivers, owners, motor carriers
- ◆ California based businesses that ship or receive freight in 53' or longer box-type trailers



Overview of Proposed GHG Regulation

- ◆ Tractors pulling box-type trailer (≥53')
 - ◆ SmartWay approved tires
 - ◆ 2011 and newer tractors must be SmartWay certified
- ◆ 53' or longer box-type trailer
 - ◆ Retrofit with SmartWay approved technologies to meet SmartWay specification, or
 - ◆ 2011 and newer trailers must be SmartWay certified
 - ◆ Phased-in compliance schedule for large fleets (20+)
 - ◆ 1/1/2010 to 1/1/2014
- ◆ Contacts
 - ◆ Stephan Lemieux, Manager - (626) 450-6162
 - ◆ Daniel Hawelti - (626) 450-6149

Proposed GHG Reduction Measure: Exemptions

- ◆ Local Haul
 - ◆ (e.g., Operation within 100 mile radius of the home base or does not exceed a maximum of 50,000 miles/year)
- ◆ Emergency vehicles (tractors and trailers)
- ◆ Container chassis
- ◆ Drayage tractors
 - ◆ Travel within 100 miles of port or yard
- ◆ Military tactical support vehicles
- ◆ Drop Frame

Proposition 1B Incentives

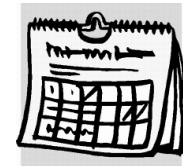
- ◆ Administered locally by Air Districts and Ports
 - ◆ \$760 million for trucks operating exclusively in California and greater than 50% in trade corridors
 - ◆ \$222 million allocated for trucks in FY 2007-08
 - ◆ Priority placed on retrofits and replacements
 - ◆ Up to \$50,000 for truck replacement
 - ◆ Up to \$5,000 for a retrofit
 - ◆ Projects must be completed before required to do so by a regulation
- <http://arb.ca.gov/gmbond> or (916) 444-6637

Other Potential Financing

- ◆ Innovative financing being explored to assist with costs
- ◆ Support reductions of criteria and toxic pollutants and greenhouse gases
- ◆ ARB working closely with the State Treasurer's Office
 - ◆ California Pollution Control Finance Authority
 - ◆ California Alternative Energy and Advanced Transportation Finance Authority

Next Steps

- ◆ Staff report available September 5, 2008
- ◆ Additional meetings with stakeholders
- ◆ Board consideration October 2008



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Statewide Truck and Bus Regulation - www.arb.ca.gov/dieseltruck
Verified Devices - www.arb.ca.gov/diesel/verdev/verdev.htm

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www.arb.ca.gov/msei/onroad/onroad.htm